Please make the following amendments to the claims.

1. (Original) A three-dimensional flow cell for aligning non- isometric particles in a liquid sample in two axes, comprising a feed zone for the sample containing non-isometric particles to be aligned and an outlet for the sample containing non-isometric particles aligned in two axes, a fluid element of the sample with the dimensions a, b, c being transformed in an expansion zone into a fluid element with the dimensions a x n, b/(n x m), c x m, a being the width, b the height and c the length of the fluid element and n and m being constants which depend on the geometry of the flow cell and which signify positive numbers ≥ 1.

Claims 2-22 (Canceled).

23. (New) The three-dimensional flow cell as claimed in claim 1, wherein n = m.

24. (New) A method of aligning non-isometric particles in a liquid sample, the liquid sample flowing through a three-dimensional flow cell as claimed in claim 1, wherein a fluid element of the liquid sample with the dimensions a, b, c is transformed into a fluid element with the dimensions a x n, b/(n x m), c x m, a being the width, b the height and c the length of the fluid element and m and n being constants which depend on the geometry of the flow cell and which signify positive numbers ≥ 1.

25. (New) The method as claimed in claim 24, wherein n = m.

26. (New) A method for the two-dimensional alignment of non-isometric particles in a liquid sample in two axes, comprising the step of transforming the particles in a three-dimensional flow cell as claimed in claim 1.

27. (New) A photometric measuring device for measuring the level of attenuation in the propagation of light in a liquid sample containing non-isometric particles, comprising a three-dimensional flow cell for aligning the particles in the liquid sample in two axes as claimed in claim 1.

28. (New) The photometric measuring device as claimed in claim 27, comprising a reflectance sensor.

29. (New) The reflectance sensor as claimed in claim 28, comprising
   a) an optical unit (A), which comprises
      aa) a light source (Aa) in the form of a lamp, and

ab) an optical waveguide (Ab) comprising fiber optics, at least one optical waveguide being a reference waveguide,

b) a sample analysis unit (B), which comprises

ba) a measuring window (Ba), and

bb) a sample analysis cell with three-dimensional flow cell (Bb),

wherein the optical unit is arranged on one side of the measuring window and the sample analysis cell with three-dimensional flow cell is arranged on the other side of the measuring window, by said cell being pressed against the measuring window in such a way that a gap is formed between the measuring window and sample analysis cell, which gap a liquid sample to be measured containing non-isometric particles must traverse, the liquid sample to be measured being led up to the gap through the three-dimensional flow cell, which is arranged upstream of the gap, in a special flow guide,

and

c) a system control unit (C) comprising detectors (Ca) for recording measured data and an evaluation device (Cb) connected thereto,

at least one optical waveguide connection being led from the light source (Aa) to the measuring window (Ba) and from the measuring window (Ba) onward to the detector (Ca), to generate a measured signal, and at least one reference waveguide connection being led directly from the light source (Aa) to the detector (Ca) or from the measuring window (Ba) to the detector (Ca), to generate a reference signal.

30. (New) The reflectance sensor as claimed in claim 29, wherein the lamp is selected from the group consisting of LEDs, gas discharge lamps and lamps with incandescent filaments.

31. (New) The reflectance sensor as claimed in claim 29, wherein the lamp has an integrated shutter.

32 . (New) The reflectance sensor as claimed in claim 29, wherein the optical waveguides are fibers of 100 µm, 200 µm, 400 µm, 600 µm or 800 µm fiber diameter.

33. (New) The reflectance sensor as claimed in claim 29, wherein the fiber used as a reference waveguide has a smaller diameter than the remaining optical waveguides.

34. (New) The reflectance sensor as claimed in claim 29, further comprsing at least one of the following features:

ac) a compensation filter arranged behind the lamp, which linearises the spectrum of the lamp in such a way that the difference between the highest and lowest intensity of the light emitted by the lamp is a maximum of a factor 4,

ad) an IR blocking filter, a condenser and a diffuser,
arranged behind the lamp
ae) optical waveguides guided in protective tubes and supported over their entire length by means of a supporting frame,

af) the reference waveguide is led via a precise spacing element with incorporated diffuser, and attenuated in a defined manner.

ag) a compensation filter arranged behind the lamp, and an IR blocking filter, a condenser and a diffuser arranged between lamp and compensation, filter.

35. (New) The reflectance sensor as claimed in claim 29, wherein the measuring window is a planar plate.

36. (New) The reflectance sensor as claimed in claim 29, wherein the gap is 2 to 10 mm long and between 0.05 and 5 mm high.

37. (New) The reflectance sensor as claimed in claim 29, wherein, during the traverse of the liquid sample containing particles, considerable shearing of the sample takes place.

38. (New) The reflectance sensor as claimed in claim 29, wherein the sample analysis cell (Bb) is removable.

39. (New) The reflectance sensor as claimed in claim 29, wherein the system control unit has detectors in the form of fiber-optic monolithic diode line sensors which permit a resolution of at least 15 bits.

40. (New) The reflectance sensor as claimed in claim 29, wherein all the units of the reflectance sensor are accommodated in a common housing, in which ventilation and thermostat-regulated heat dissipation are carried out.

41. (New) A method for measuring the reflectance of a liquid sample containing non-isometric particles, comprising:

i) forming a sample stream of a sample containing non-isometric particles with a defined thickness and defined alignment of the particles in the sample in two axes,

ii) irradiating the sample stream at one or more angles with electromagnetic radiation emitted by a light source, the electromagnetic radiation interacting with the sample and some of the radiation being reflected diffusely following interaction with the sample,

iii) receiving and registering the diffusely reflected radiation as a reflectance signal at a plurality of angles,

iv) receiving and registering a reference signal, the reference signal being electromagnetic radiation which is emitted by the same light source used to irradiate the sample stream but which does not interact with the sample,

wherein the reflectance signal and the reference signal are registered simultaneously.

42. (New) A method according to claim 41 wherein the reflectance is measured by a reflectance sensor comprising

a) an optical unit (A), which comprises

aa) a light source (Aa) in the form of a lamp, and

ab) an optical waveguide (Ab) comprising fiber optics, at least one optical waveguide being a reference waveguide,

b) a sample analysis unit (B), which comprises

ba) a measuring window (Ba), and

bb) a sample analysis cell with three-dimensional flow cell (Bb),

wherein the optical unit is arranged on one side of the measuring window and the sample analysis cell with three-dimensional flow cell is arranged on the other side of the measuring window, by said cell being pressed against the measuring window in such a way that a gap is formed between the measuring window and sample analysis cell, which gap a liquid sample to be measured containing non-isometric particles must traverse, the liquid sample to be measured being led up to the gap through the three-dimensional flow cell, which is arranged upstream of the gap, in a special flow guide,

and

c) a system control unit (C) comprising detectors (Ca) for recording measured data and an evaluation device (Cb) connected thereto,

at least one optical waveguide connection being led from the light source (Aa) to the measuring window (Ba) and from the measuring window (Ba) onward to the detector (Ca), to generate a measured signal, and at least one reference waveguide connection being led directly from the light source (Aa) to the detector (Ca) or from the measuring window (Ba) to the detector (Ca), to generate a reference signal.

43. (New) A method according to claim 41 wherein the reflectance of liquid pigment preparations containing non-isometric particles is determined during at least one of a process stage during production, further processing and use of liquid pigment preparations, quality assessment during coating production, during the production of coatings by mixing various liquids for controlling a metering system, during coating production for automatically regulated color adjustment by means of tinting, in a coating installation which has a metering system for color pastes for matching the color of the coating , monitoring subsequent color changes as a result of ageing or shear stressing of pigmented coatings or pigment pastes or monitoring product quality in ring mains of ring main installations.

44. (New) The method of claim 41, wherein irradiation of the sample is carried out at one or more angles with electromagnetic radiation emilted by a light source and an receiving and registering of a reflectance signal is carried out at a plurality of angles.